Consumption Dispersion Between White-Collar and Blue-Collar Workers and Rising Market Concentration in the USA: 1984-2011

Dögüs, Ilhan

Veröffentlichungsversion / Published Version
Arbeitspapier / working paper

Ilhan Dögüs

Consumption Dispersion Between White-Collar and Blue-Collar Workers and Rising Market Concentration in the USA: 1984-2011

ZÖSS
ZENTRUM FÜR ÖKONOMISCHE
UND SOZIOLOGISCHE STUDIEN

Discussion Papers

ISSN 1868-4947/72
Discussion Papers
Hamburg 2019

Consumption Dispersion Between White-Collar and Blue-Collar Workers and Rising Market Concentration in the USA: 1984-2011

Ilhan Dögüs

Discussion Paper
ISSN 1868-4947/72
Zentrum für Ökonomische und Soziologische Studien
Universität Hamburg
Januar 2019

Impressum:

Die Discussion Papers werden vom Zentrum für Ökonomische und Soziologische Studien veröffentlicht. Sie umfassen Beiträge von am Fachbereich Sozialökonomie Lehrenden, NachwuchswissenschaftlerInnen sowie Gast-ReferentInnen zu transdisziplinären Fragestellungen.

Herausgeber/Redaktion:

Zentrum für Ökonomische und Soziologische Studien (ZÖSS)
Arne.Heise@wiso.uni-hamburg.de
Fachbereich Sozialökonomie
Universität Hamburg – Fakultät WISO
Welckerstr. 8
D – 20354 Hamburg

Download der vollständigen Discussion Papers: https://www.wiso.uni-hamburg.de/fachbereich-sozoek/professuren/heise/zoess/publikationen/zoess-discussion-papers.html

Consumption Dispersion Between White-Collar and Blue-Collar Workers and Rising Market Concentration in the USA: 1984-2011[1]

by Ilhan Dögüs

Abstract

The relationship between consumption inequality (between two groups) and market concentration has hitherto been absent from the literature. This paper argues that consumption dispersion between white-collar and blue-collar workers has caused increased market concentration in the USA in a direct and long-term structural manner. Using data from the Consumption Expenditure Survey (CES) and the St. Louis Fed's FRED datasets, the argument is empirically analyzed based on yearly data for the period 1984-2011 in the USA. The results confirm the existence of a long-term relationship of causality. Applying a vector auto regressive (VAR) model to the data, we find that the variance in market concentration markup due to consumption dispersion starts to rise after the fourth period and reaches 41% in the tenth period.

Key words: consumption, market concentration, white-collar workers

JEL codes: J31, J51, J82

[1] This research has been funded by Post Doc Plus Scholarship of the Claussen-Simon Foundation.

1. Introduction

In the literature, the relationship between inequality and consumption has been mostly examined either by way of household debt and its impacts on macroeconomic outcomes or the question of whether personal income inequality leads to consumption inequality. The relationship between consumption inequality (between two groups) and market concentration (see Figure 1) has hitherto been absent from the literature.

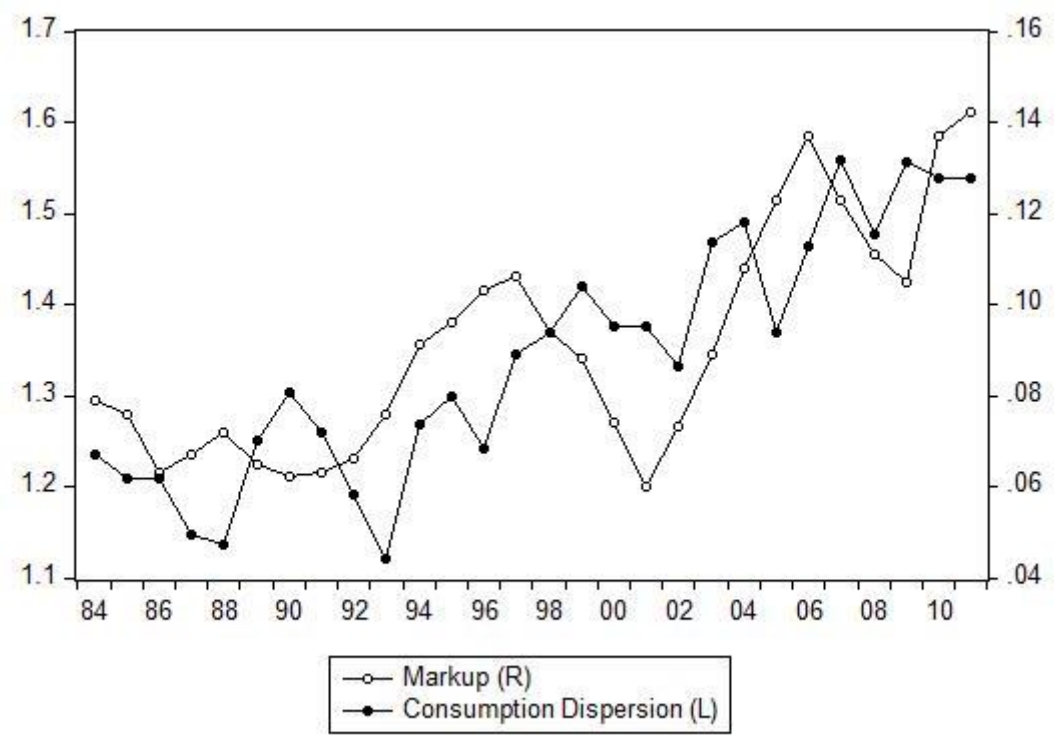

Figure 1. Consumption Dispersion (own calculation based on Consumer Expenditure Survey) and Markup (retrieved from https://fred.stlouisfed.org/series/A463RD3A052NBEA): USA, 1984-2011.

In Dögüs (2017), I argued that rising market concentration at the aggregate level has a significant structural impact on increasing wage dispersion between white-collar and blue-collar workers, since large firms are inclined to employ and pay more to white-collar workers. They do so in order to increase and/or maintain their market share, thanks to innovative tasks carried out by white-collar workers, such as R&D, product design and differentiation, financial/capital market operations, market research, advertising and sales operations, etc.

This paper attempts to explain the other side of the coin, by examining if the consumption dispersion between white-collar and blue-collar workers that is enabled by wage dispersion (see Figure 2) reinforces market concentration.

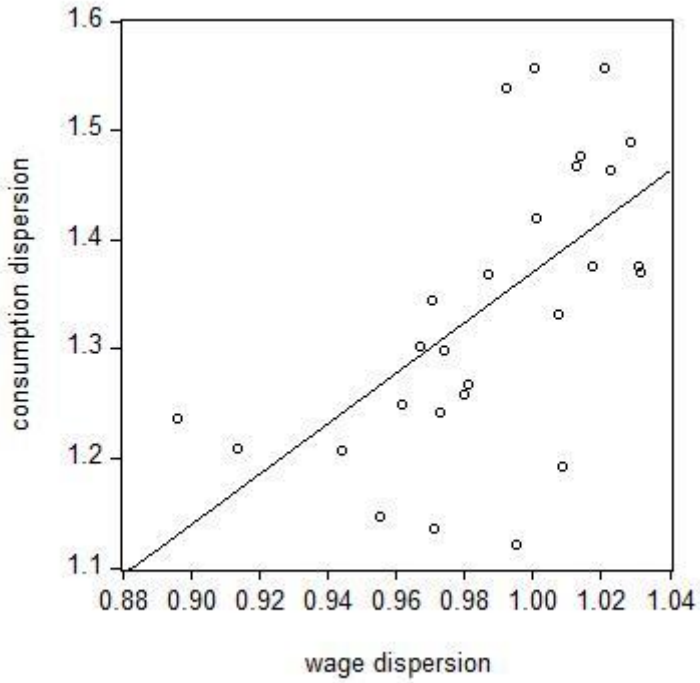

Figure 2. Wage Dispersion (own calculations based on St. Louis Fed's FRED datasets) and Consumption Dispersion: USA, 1984-2011.

My distinction between white-collar and blue-collar workers does not refer to the skill-level of workers, unlike that proposed by the Skill-Biased Technological Change approach (see Acemoglu, 2003; Acemoglu and Autor, 2010; Autor, 2014). Rather, it is based on the tasks workers perform. The essential point is whether these tasks are ancillary, innovative tasks whose purpose is to increase the market share/market power of the firm (such as sales operations, advertising, marketing, design, R&D, business management, etc.) or tasks whose purpose is simply to produce goods and services. The white-collar/blue-collar distinction may appear confusing, since some jobs might seem like white-collar jobs, despite the fact that they have nothing to do with increasing market power. Nonetheless, the distinction represents the option that can be most readily addressed by an analysis of the available data. Calling innovative ancillary labor "white-collar work" and manual labor "blue-collar work" would not lead to any crucial empirical and theoretical shortcomings, despite the existence of challenging examples such as cleaners, accountants, etc.

By "market concentration," I have in mind situations that are not fully competitive, such as oligopoly and/or monopolistic competition: situations in which firms are not price-takers and can differentiate their products in line with their market strategies, in order to be able to charge higher markups over their average costs. I am interested in market concentration at the macro level, not at the sectoral level, and thus prefer to measure it by the way of markup at the macro level.

"Consumption dispersion" refers to increasing inequality in consumption expenditures between two income groups: in this case, between white-collar and blue-collar workers.

The hypothesis to be tested is as follows: rising consumption dispersion between white-collar workers (ancillary, overhead labor) and blue-collar workers (productive labor) has

caused a rise in market concentration at the macro level in a direct and long-run structural manner by validating the markup of big companies.

It could be argued that it is not the rise in inequality, but rather the increase in the overall income level that enables firms to charge higher markups. This could be the case in the short-term, since an increase in the wages of blue-collar workers would depress markups charged by small and competitive firms that are both employers of blue-collar workers and producers of goods consumed by blue-collar workers. Therefore, wage inequality and hence inequality in consumption expenditures are more significant in explaining the markup differentials among firms.

The paper is structured as follows: after the theoretical considerations in section two, section three tests the argument empirically using a VAR model, and section four provides a conclusion.

2. Changing Consumption Patterns of White-Collar Workers and Market Concentration

In Kaleckian theory (Kalecki, 1954), it is assumed that market power allows firms to charge a higher markup rate per unit of production over their labor and raw material costs (Kalecki 1990, p. 247). More concentrated markets would be characterized by higher markup rates (Kalecki 2009, p. 30; cited in Rugitsky, 2013). Being able to charge higher markup requires lower price elasticity of demand for the products in question.

The lower price elasticity of demand of white-collar workers, due to their higher income level, works to maintain concentration at the aggregate level by way of the consumption of more high-end, expensive goods produced by large firms whose customers are mainly other capitalists and white-collar workers. These firms tend to innovate, to differentiate and modify their products, and to advertise more, in order to stimulate and to preserve consumption.

Due to innovation, advertisement and differentiation of expensive and branded products carried out by white-collar workers, a newly employed white-collar worker or an increase in the wage gap between white-collar and blue-collar workers favors the employment of another white-collar worker in another dominant firm, rather than a blue-collar worker. If one firm innovates or differentiates its products, then the rival firm also innovates, in order to compete, and hence gives priority to the employment and salaries of overhead labor. Minsky emphasizes this point as follows:

> *If all the overhead and ancillary service costs are wage costs and all of such wages are spent on consumer goods, then profits in the extended sense will rise by the amount of such wages. Consumption spending by ancillary labor validates in the aggregate the employment of ancillary labor*. (Minsky 1986, p. 174)

In order to test this argument and whether the consumption pattern has changed because of wage dispersion, we need to compare the compositions of the consumption expenditures of white collar and blue-collar workers.

The comparison between the consumption expenditures of white-collar and blue-collar workers (in the given dataset, between managers-professionals and other workers: such as technical sales and clerical workers, construction workers and mechanics, and

operators, fabricators and laborers) on the basis of the *Consumer Expenditure Survey* (CES) from 1984 to 2011 shows that the difference between average real total consumption expenditure of white-collar and blue-collar workers amounted to around 14.2% in 1984 and 54.3% in 2011. This secular increase in the difference between the consumption expenditures of the two groups corresponds to an increase in the "*relative permanent income*" (Palley 2008, p. 6) of white-collar workers.

According to my own calculations based on the CES, apart from some limited items, there is no significant difference in the expenditure shares of consumption items between white-collar workers and blue-collar workers. If the share of a consumption item is the same for both groups, but the total consumption expenditure has increased, then this implies that an average white-collar worker (in this dataset, managers and professionals), with higher total consumption expenditure, pays more for the same share of these items in his/her expenditure as compared to an average blue-collar worker. This clearly indicates that white-collar workers prefer more expensive versions of the same categories of goods and services that have the same share within the consumption expenditures of both groups of workers.

This is explicable by way of Kalecki's categorization of goods into capitalist consumption goods and worker consumption goods (Kriesler 1987, p. 86). "*If there is an income rise, higher-quality goods replace lower-quality goods of the same category*" (Drakopoulos 1992, p. 158). For example, blue-collar workers might drink a simple beer, whereas capitalists and high-wage-earning white-collar workers might prefer to drink high-quality whisky, despite the expenditures for both being recorded as beverage expenditures. A blue-collar worker can only afford to buy a simple and cheap t-shirt, whereas a well-paid white-collar worker may prefer an expensive t-shirt of his or her favorite brand. This might reflect Veblen's '*conspicuous consumption*' (Veblen, 1899 [2007]), which implies that the main motive driving consumption decisions is publicly to display economic power, i.e. prestige.

When climbing from a blue-collar to a white-collar position, the share of expenditures for food, rented dwellings, utilities and transportation decrease by around 2%, whereas the share of expenditures for personal insurance and pensions, owned dwellings, mortgage and education increase by around 3%. This indicates social mobility, since these are the items that were not so much owned by blue-collar workers, but rather by white-collar workers, when the social ladder being climbed, and it corresponds to "*raising the consumption norm*" (Cynamon and Fazzari 2016, p. 10). It also corresponds to '*the change in the ratio of exchange between present goods and future goods*' (Keynes 1960, p. 93), since spending on personal insurance and pensions, an owned dwelling, mortgage and education implies a concern for the long-term; whereas food, a rented dwelling, and utilities relate to short-term needs. This change can be understood as falling under the heading of "*hierarchical needs*" (Drakopoulos 1992): an expression that points to the fact that with the rise of income, consumption of luxury goods replaces the consumption of more subsistence-oriented goods. For example, Mihić and Čulina (2006: 88) report that "*social class compared to income has a greater influence over the consumption and purchase of a greater number of products (e.g., theater attendance, macrobiotic nutrition, importance of furniture design, etc.)*" in the case of Croatia.

3. Empirical Evidence

This section deals with the empirical testing of the main argument, which is that rising consumption dispersion between white-collar and blue-collar workers has led to an increase in market concentration. The testing of the argument is done using US annual data for the period between 1984 and 2011. The reason for using the 28-year time span and examining macro data is to demonstrate and to capture this long-run structural tendency during the recent decades in which the dramatic changes in question have taken place.

3.1. Data Description and the Model

Markup is the profit per unit of real gross value-added of nonfinancial corporate business and the relevant data has been taken from the St. Louis Fed's FRED datasets. Consumption dispersion is calculated as the ratio of the consumption expenditure of managers and professionals to the consumption expenditure of other workers (such as technical sales and clerical workers, construction workers and mechanics, and operators, fabricators and laborers) based on the data in *CES* from 1984 to 2011.

A VAR model with impulse response function (IRF) and variance decomposition analysis (VDA) is one of the best options for examining such an argument,[2] since the main argument of the paper is that there is a long-run structural and direct causal relationship between pension funds and wage dispersion. In VAR modelling, "*each endogenous variable is assumed to depend on lagged values of itself and of all other endogenous variables*" (Dées and Güntner, 2016, p. 5). However, as this paper deals merely with the causality running from wage dispersion to pension funds, the flipside of the relationship (i.e. causality running from pension funds to wage dispersion) is neglected and left for further research – this despite the fact that VAR modelling assumes that the relationship is bi-directional.

Tarassow (2010) describes what is being analyzed by way of the impulse response function and variance decomposition as follows:

> *…impulse-response function which computes the propagation over time of a shock on the variable of interest. The variance decomposition analyzes the relative impact of a shock in one variable on the total variance of the variable of interest – it measures the relative impact of a structural shock for the explanation of the total variance of the dependent variable*. (Tarassow, 2010, pp. 14-15).

The impulse response function reveals whether the causality between variables is direct or not and variance decomposition analysis "*provides valuable supplementary information about the interlinkages among the variables in the model*" (Greenwood-Nimmo and Tarassow, 2013, p. 12). Both analyses are useful for providing structural clarification of how strong and how long-lasting the effects are. Moreover, the impulse response function has an advantage inasmuch as it reveals that the power of the effects is not stable, but rather might fluctuate and might even turn in the opposite direction (from positive to negative and vice-versa) after a certain time.

A simple Ordinary Least Square (OLS) would present only the average coefficient across the time span, which indicates the explanatory power of the independent variable (here

[2] I do not opt for any endogenous or exogenous control variable in the model, because what is being tested is merely whether the causality is direct or not.

consumption dispersion) with respect to the dependent variable (market concentration). Indeed, this coefficient of the dependent variable might vary over time and does not indicate any relationship of causality, but points merely to the association of the variables.

As far as the relationship of causality is concerned, it is more useful to show to what extent the variance of the dependent variable is explained by the independent one and how the former reacts to a one unit shock in the latter. It is also important to show how they behave across time.

As I am directly dealing with the dispersion between the consumption expenditures of productive workers and of overhead labor and I have argued that the dispersion between them determines market concentration at the macro level, I employ the ratio of consumption expenditures of white-collar workers and blue-collar workers and profit per unit value-added indicating the realized markup.

Table 1. *Unit Root Test Results: T-Statistic with Trend*

Unit Root Test	**Augmented Dickey-Fuller Test**
Consumption Difference	-4.29 (critical value at 10%: -3.22)
Markup	-3.41 (critical value at 10%: -3.23)

Note: Both variables are I(0) at 0.1 level.

As the variables exhibit stationarity (see Table 1), I employ a Vector Autoregressive Model. SC (Schwarz Information Criterion) suggests a 2-period lag length (see Table 2).

Table 2. *VAR Lag Order Selection Criteria*

Lag	**Hannan - Quinn Information Criterion**
0	-6.283
1	-8.158
2	-8.187*
3	-8.162

Note: * indicates lag order selected by the criterion

In line with theoretical framework outlined above that market concentration (rising markup) leads first to consumption dispersion (via wage dispersion), I prefer to arrange the variables within the model as follows: first differences of markup (m) and then consumption dispersion (cd). Thus, the VAR(2) model equation has the following form:

$$m_t = c_1 + ß_{11}^1\, m_{t-1} + ß_{12}^1\, cd_{t-1} + ß_{11}^2\, m_{t-2} + ß_{12}^2\, cd_{t-2}$$

$$cd = c_1 + ß_{21}^1\, m_{t-1} + ß_{22}^1\, cd_{t-1} + ß_{21}^2\, m_{t-2} + ß_{22}^2\, cd_{t-2}$$

Equation 1: VAR(2) Model Equation

The results of the LM autocorrelation test also indicate that the model has no autocorrelation problem (see Table 3). Per the Inverse Roots of the AR Characteristic Polynomial (see Figure 4), the model also has no stability problem,.

Table 3. VAR Residual Serial Correlation

Lag	**LM-Stat**	**Prob.**
1	4.374	0.357
2	6.525	0.163

Note: As probabilities in 2 lags are greater than 0.05, there is no autocorrelation problem.

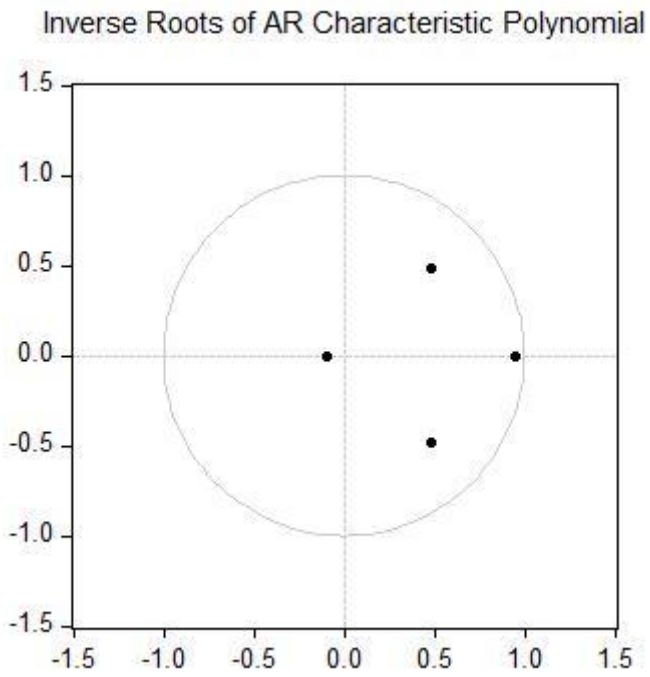

Figure 4. Inverse Roots of AR Characteristic Polynomial

3.2. Results

The responses of markup to one unit shock in consumption dispersion are positive and significant in between the fourth and sixth periods at 95% confidence level. This result does not falsify and in fact strongly supports the main argument of this paper that consumption dispersion between white-collar workers and blue-collar workers has a direct and positive causal effect on market concentration. The responses of consumption dispersion to markup is positive and significant over the first four periods.

This indicates that first markup (market concentration) increases and leads to wage dispersion and hence consumption dispersion, which later feeds back upon markup.

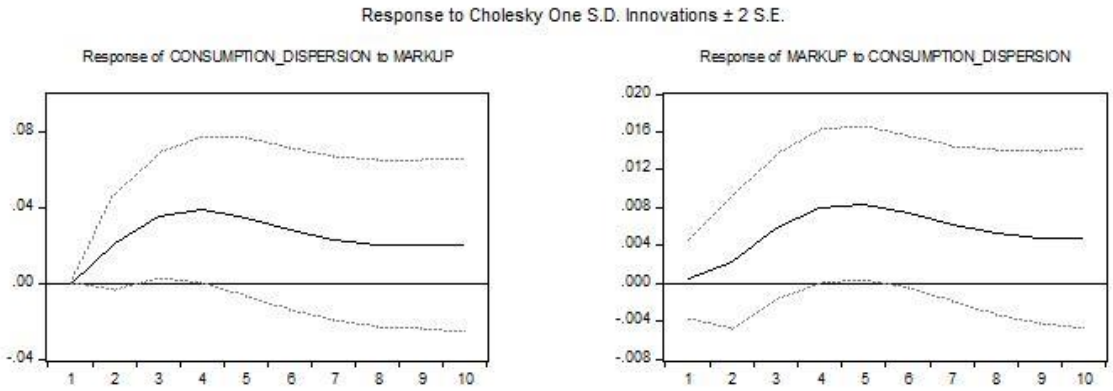

Figure 5. Impulse Response Function

Around 41% of variations in market concentration (markup) are explained by consumption dispersion in the long run.

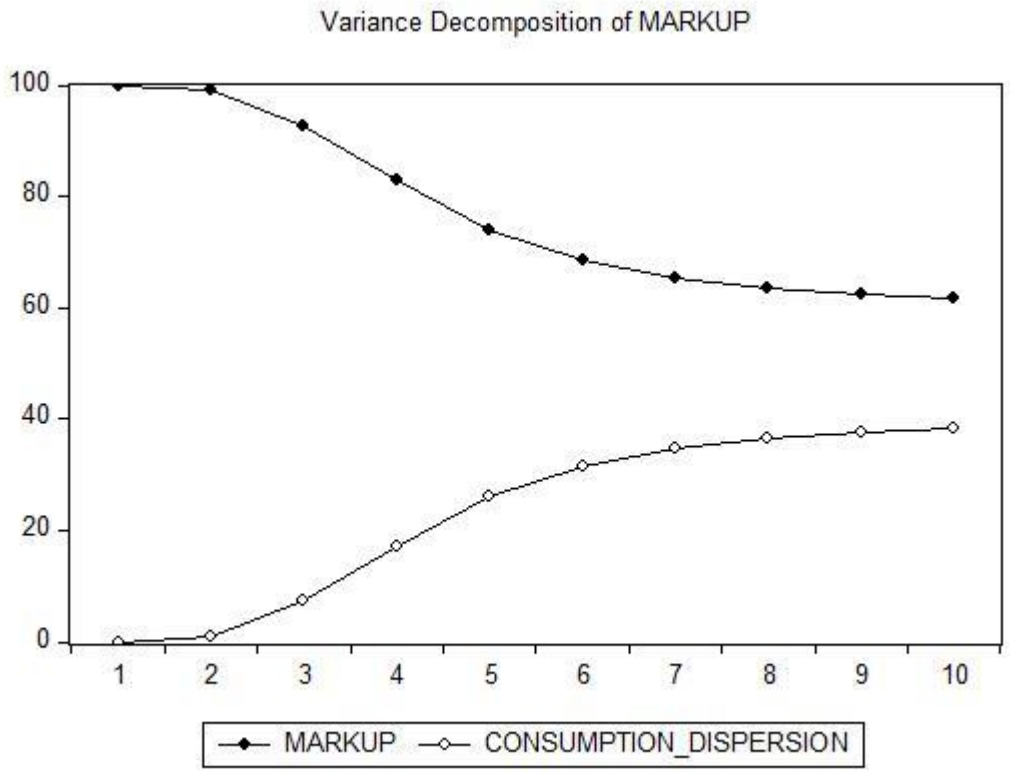

Figure 6. Variance Decomposition

Granger-causality test results support the IRF and VDA results (See Table 4). As p-values are less than 10%, we can reject Ho at a 90% confidence level.

Table 4. *VAR Granger Causality/Block Exogeneity Tests*

Ho	Chi-sq	df.	Prob.
Change in markup does not Granger-cause change in consumption difference	4.796	2	0.09
Change in consumption difference does not Granger-cause change in markup	5.085	2	0.07

4. Conclusion

Our hypothesis is that the causal relationship from consumption dispersion to market concentration is a form of structural causality. The results of VAR Model analysis, based on US-data between 1984 and 2011, show that this hypothesis has not been falsified at an at least 90% confidence level.

This paper has made some innovative contributions to the literature by incorporating market structure and consumption structure in a dynamic empirical analysis of the contemporary macro dataset. It has shown the relationship between market concentration, on the one hand, and consumption dispersion between white-collar and blue-collar workers, on the other.

Bibliography

Attanasio O. P. and L. Pistaferri (2016), 'Consumption Inequality.' Journal of Economic Perspectives. 30 (2): 1–27.

Attanasio, O., E. Hurst and L. Pistaferri, (2012), 'The Evolution of Income, Consumption, and Leisure Inequality in the United States, 1980–2010.' NBER Working Paper 17982 http://www.nber.org/papers/w17982 (Date of Access: 22.10.2018).

Dögüs I. (2017) 'Rising Wage Dispersion between White-Collar and Blue-Collar Workers and Market Concentration: The Case of the USA, 1966-2011.' ZÖSS Discussion Paper n. 62. https://www.wiso.uni-hamburg.de/fachbereich-sozoek/professuren/heise/zoess/publikationen/dp62.pdf

Cynamon B. Z. and S. M. Fazzari (2013), 'Inequality and Household Finance During the Consumer Age.' Levy Economics Institute Working Paper, n. 752, Annandale-on-Hudson (NY): Levy Economics Institute of Bard College.

Johnson, D. and S. Shipp (1997), 'Trends in inequality using consumption-expenditures: The U.S. from 1960 to 1993.' The Review of Income and Wealth. 43 (2):133-152.

Johnson, D. S., T. M. Smeeding, and B. B. Torrey (2005), 'Economic inequality through the prisms of income and consumption.' Monthly Labor Review. 128(4): 11–24.

Kalecki, M. (1954), Theory of Economic Dynamics. Allen & Unwin: London.

Kalecki, M. (1990), Collected Works of Michal Kalecki: Volume I. Capitalism: Business Cycles and Full Employment: 1, (Edit.) Jerzy Osiatynsk, Oxford: Clarendon Press.

Keynes, J. M. (1936), The General Theory of Employment, Interest and Money. New York, USA: Macmillan.

Kim, Y. K. (2016), 'Macroeconomic effects of household debt: an empirical analysis.' Review of Keynesian Economics, 4(2): 127–150.

Meyer, B. D. and J. X. Sullivan (2017), 'Consumption and Income Inequality in the U.S. Since the 1960s.' NBER Working Paper No. 23655.

Mihić, M. and G. Čulina (2006), 'Buying behavior and consumption: Social class versus income.' Management, 11: 77-92.

Minsky, H. P. (1986), Stabilizing an Unstable Economy. New Haven, CT: Yale University Press.

Palley T. I. (2008), 'The Relative Income Theory of Consumption: A Synthetic Keynes-Duesenberry-Friedman Model.' PERI Working Paper, n. 170, Amherst: Political Economy Research Institute, University of Massachusetts Amherst.

Phillips, C. (2003), 'How do Consumers Express their Identity through the Choice of Products that they Buy?' Working Paper Series 17, University of Bath.

Rugitsky, F. M. (2013), 'Degree of monopoly and class struggle: political aspects of Kalecki's pricing and distribution theory.' Review of Keynesian Economics, 1(4): 447-464.

Tarassow, A. (2010), 'The empirical relevance of Goodwin's cycle model for the US economy', PRAG Discussion Paper No. 5, https://www.wiso.uni-hamburg.de/fachbereich-sozoek/professuren/heise/zoess/forschung/forschungsfelder/forschungsfeld-iii-bildung-und-weiterbildung/prag-05.pdf (Date of Access: 12.06.2016).

Trigg, A. B. (2001), 'Veblen, Bourdieu, and Conspicuous Consumption.' Journal of Economic Issues, 35 (1): 99-115.

Veblen, T. (1899 [2007]), The theory of the leisure class. Oxford: Oxford University Press.

Wildauer R. (2016), 'Determinants of US Household Debt: New Evidence from the SCF.' PSKG Working Paper, n. 1608, Leeds: Post Keynesian Economics Study Group, University of Leeds.